Amendments to the Specification:

Please replace the first paragraph of the specification with the following amended paragraph:

CLAIM OF PRIORITY

This application claims priority from United Kingdom patent application Number [0314568.7] 0216438.2, filed [June 21, 2003] July 16, 2002.

Please replace the second and third full paragraphs on page 26, beginning on line 8, with the following amended paragraphs:

Another embodiment of the invention with an 'electrostatic multi-pass separator' ~~is shown in Fig. 16 where~~ uses the volume of the separator 151 ~~is used~~ twice. This is achieved by reverting the Y-component of ion velocity by deflector [[158B]] 158 positioned at the far end of separator 151. The dimensions of deflector [[158B]] 158 are chosen large enough to accept the entire ion beam with account of additional expansion in Y-direction on the way through separator 151. In this scheme, both deflection of ion trajectory 159 into the separator 151 and its deflection back onto the straight pass to collision cell 81 could be performed by the same deflector [[158A]] 158. Switching off of this deflector allows to bypass separator 151 altogether which may be used for parent ion scan in MS-only mode.

Referring to Fig. [[17]] 16, another embodiment of the invention utilizes a modified electrostatic multi-pass separator, formed by folding a two-dimensional field into a cylindrical field. In this embodiment, called a cylindrical multi-pass separator 161, for the purpose of compact design, each elongated electrode is converted into a pair of coaxial cylinders--internal and external. The separator 161 comprises a free flight channel, formed by cylinders 162, 163, and two electrostatic mirrors, composed of focusing cylinders 164, and reflector cylinders 165. The external cylinder of free flight channel 162 has entrance and exit windows 166, equipped with beam deflector 170. A pulsed ion beam is introduced into separator 161 via a spatial focusing lens 167, a set of steering plates 168, through entrance window 166 and deflector 170. The ion path is shown by the line 169.

Please replace the first and second paragraphs on page 27, ending on line 16, with the following amended paragraphs:

The entrance and exit of ions can be organized in multiple ways. Fig. [[17B]] 17 shows an example of ion introduction through a slit-shaped window 166B with subsequent horizontal deflection, aligning ion beam along X-axis. To reduce fringing fields, the deflector 170B is surrounded by mesh. Fig. [[17C]] 17 also shows an example of ion introduction along X-axis through a segment cut-out in the entire cylindrical analyzer. Beam is injected into analyzer after horizontal deflection by plates 170C. Field distortion is minimized by using double-sided PCB, equi-potential within cut-out and with distributed potentials on the side oriented towards cylindrical analyzer. The above-described electrostatic multi-pass separators are suggested for use in comprehensive tandem TOF spectrometer of the invention in variety of combinations with earlier described pulsed ion sources, fragmentation cell and fast TOF2.

An embodiment of Fig. [[17]] 16 could be also used with an additional RF applied to the outer or inner set of coaxial electrodes. Due to the non-uniformity of the logarithmic field, this will create a quasi-potential ~~forcing~~ that forces ions away from the inner electrode. Together with inward DC field from the outer electrode, this could create a radial potential well for better ion confinement.

Please replace the fourth paragraph on page 27, beginning on line 23, with the following amended paragraph:

It should be noted that schemes of Fig. 12, 15, 16, [[17]] allow the avoidance of multiple reflections altogether and pass ions to the CIF cell directly. This improves sensitivity and acceleration of the parent ion scan.